ABSTRACT

Effects of Vitamin C (Ascorbic Acid) on Female Mice (*Mus musculus L.*)'s Estrous Cycle

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Vitamin C is frequently consumed by women as whitening agent. It is believed to be able to inhibit *melanogenesis* by altering tyrosinase enzyme. Vitamin C has also been associated with reproductive system. It is greatly accumulated in the ovary, particularly theca cells, granulosa cells, and luteal compartment, and it is said to have biological functions in ovarian cycle. The objective of this study was to determine the effects of the administration of Vitamin C (ascorbic acid) on female mice's (*Mus musculus L.*) estrous cycle. Twenty-four female mice (Mus musculus L.), 3-4 months year old, were divided into four groups. The first group was control group (K) with no supplementation of ascorbic acid. The other three treatment groups (P1, P2, P3) were given aquadest administrated by ascorbic acid for 13 mg/kg of body weight, 130 mg/kg of body weight, and 260 mg/kg of body weight, daily for a week. Ascorbic acid was given orally with orogastric tube. The length of estrous cycle was determined by taking vaginal swab and observing the vaginal epithelial cells changes throughout the cycle. Vaginal swab was taken daily for seven days. Results of *Kruskal-Wallis* test revealed the length of mice's estrous cycle was significantly reduced in groups supplemented with ascorbic acid (P1, P2, and P3) compared to the control group with no supplelentation of ascorbic acid ($P < 0.05$). Results of *Mann-Whitney* test revealed that there was no significant difference between treatment groups (P1, P2, and P3). Therefore, ascorbic acid administration was capable in shortening the length of estrous cycle in female *Mus musculus L*, but didn't have any difference effect between the different dose administration in the three treatment groups. It is concluded that ascorbic acid has an effect in ovarian cycle physiology on which further research has to be done and that a reappraisal of its potential clinical value in female reproductive system would be timely.

Keywords: ascorbic acid, estrous cycle